



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,835	04/13/2001	Johan Van Brabant	64251-020	4292

7590

07/05/2002

HUSCH & EPPENBERGER, LLC  
Suite 1400  
401 Main Street  
Peoria, IL 61602

EXAMINER

JACKSON, MONIQUE R

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-7

<b>Office Action Summary</b>	Application No. 09/834,835	Applicant(s) BRABANT ET AL.	
	Examiner Monique R Jackson	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 April 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 22-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 1773

### DETAILED ACTION

1. Applicant's election of Invention I, Claims 1-21, in Paper No. 6 is acknowledged.

Because applicant did not specify whether the election was with or without traverse and considering the applicant did not point out any errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 1-32 are pending in the application. Claims 22-32 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

### *Specification*

3. The disclosure is objected to because of numerous informalities, for example:

Page 3, lines 2, 5 and 12 – lines 2 and 5 recite REL however line 12 recites RFL, the

Examiner believes REL in lines 2 and 5 should be RFL as in line 12.

Page 3, line 3, “formaldehyd” should be “formaldehyde”.

Page 4, line 12, “organosiloxan” should be “organosiloxane”.

Page 4, line 13, “chiorosilane” should be “chlorosilane”.

Page 4, lines 12-15, recite “wherein X is a siloxane group, a chiorosilane (*chlorosilane*)

group or a bromosilane group, especially: -SH; ...; COOH; COCl.” However, it is noted that -SH, -COOH and COCl are not siloxane, chlorosilane or bromosilane groups; further the specification at Page 10, lines 17-23 includes additional groups for X that are not listed at Page 4, lines 12-15 and hence appears to be inconsistent.

Art Unit: 1773

Page 4, line 19, "siloxan" should be "siloxane".

Page 5, line 6; Page 12, line 16; Page 16, lines 21 and 22; "H<sub>2</sub>O" should be "H<sub>2</sub>O".

Page 7, line 24, both occurrences of "Mpa" should be "MPa".

Page 8, line 9, "butylrubber" should be "butyl rubber".

Page 8, line 10, "dien" should be "diene".

Page 8, line 28, "phthalocyanin or a phthalonitril" should be "phthalocyanine or a phthalonitrile".

Page 10, line 15, "clorides" should be "chlorides".

Page 11, line 17, "AR" should be "Ar" based on general formula (I) recited on Page 10.

Page 12, line 26, "seperate" should be "separate".

Page 15, line 29, "electzrolytically" is misspelled.

Page 16, lines 12-13, the specification recites, "The following examples n and n+1"

however it is unclear what the term "n and n+1" refers to.

Page 18, line 13, the specification recites "(ditto)" and though it is assumed that "ditto"

refers to the above line, the Examiner suggests that the Applicant utilize the actual term to which "ditto" corresponds.

4. The specification has not been thoroughly examined to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any additional errors of which applicant may become aware in the specification.

#### ***Claim Objections***

5. Claim 18 is objected to because of the following informalities: at line 4, "x" should be "X" based on formula I. Appropriate correction is required.

Art Unit: 1773

6. Claim 17 is objected to because of the following informalities: at line 8, "phthalocyanin, phthalonitril" should be "phthalocyanine, phthalonitrile". Appropriate correction is required.

7. Claim 19 is objected to because of the following informalities: at line 9, "phthalocyanin or a phthalonitril" should be "phthalocyanine or a phthalonitrile"; line 15, "methycrylic" should be "methacrylic" and "ist" is not a word. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 2-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 (and 3) recites "according to claim 1, wherein said polymer is deposited from an alcoholic (organic) solution", respectively. However, claim 1 recites that the polymer is deposited from an aqueous solution. Hence, in view of the specification at Page 3, lines 23-24, which recites "a coating of polymer or prepolymer deposited from an aqueous, alcoholic or organic solution", it is unclear whether claims 2 and 3 are meant to encompass a solution that is both aqueous and alcoholic or aqueous and organic, or whether claims 2 and 3 are meant to replace the aqueous solution with an alcoholic or organic solution, respectively.

10. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 recites "according to claim 1, wherein said functional groups form covalent bonds with the outward directed functional groups of a mono-molecular layer of a bifunctional adhesion promoter intercalated between said metal and said coating and bound to said metal by

Art Unit: 1773

its second functional groups” in lines 1-5. However, Claim 1 recites that the “polymer deposited from an aqueous solution...and bearing functional groups covalently bonded to the metal surface of said reinforcement element”, hence Claim 6 appears to contradict Claim 1 given that Claim 1 recites that the functional groups of the polymer are covalently bonded to the metal surface or Claim 6 appears to recite that functional groups of the polymer may be bound to the metal surface and the adhesion promoter. However, given that specification recites that the functionalities of the functionalized polymer composition are bound directly to the metal surface or to a bifunctional adhesion promoter, it is unclear whether Claim 6 is meant to supersede the limitations of Claim 1 or what exactly is meant to be encompassed by Claim 6. Similarly, Claim 7 recites “according to claim 1, wherein said functional groups form covalent bonds with the outward directed first functional groups of a multi-molecular layer” and is unclear for the same reasons as discussed above for Claim 6.

11. Claims 9-10, 12-17 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Though alternative expressions are permissive in the claims, they should be drafted in proper alternative format, i.e. selected from A, B or C; or in proper Markush claim format, i.e. selected from the group consisting of A, B and C. A claim that recites “selected from the group consisting of A, B or C” or recites “selected from the group consisting of A, B or C and D or E” or recites “selected from the group comprising” is improper and renders the claim indefinite for it is unclear as to what elements of the group are meant to be encompassed by the claim.

12. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 recites the limitation “according to claim 1, wherein said coating comprises a prepolymer deposited from an aqueous solution”, however, given that Claim 1 recites that the coating comprises a polymer deposited from an aqueous solution and given that the specification at Page 3, lines 23-34 recites “a polymer **or** prepolymer deposited from an aqueous, alcoholic or organic solution”, it is unclear whether Claim 11 is meant to supersede the limitations presented in Claim 1 or whether Claim 11 is meant to encompass a coating composition comprising a polymer **and** a prepolymer.

13. Claims 13-16 are further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 13 recites the limitation “the prepolymer of the coating comprises a polymer matrix selected from the group consisting of thermoplastics, thermoplastic elastomers, thermoplastic polyolefins, olefin rubbers, polyurethanes or blends thereof, elastomeric polymers or copolymers or an at least partially elastomeric block copolymer” and Claim 14 recites the limitation “the prepolymer of the coating comprises a polymer backbone selected from the group consisting of thermoplastics, thermoplastic elastomers, thermoplastic polyolefins ...” (with the remainder of the list similar to that recited in Claim 13). Though it is noted that several of the Markush group elements read on one another, it is unclear how the prepolymer can comprises a polymer matrix or a polymer backbone given that a **prepolymer** is not a polymer as the term is understood in the art, particularly, considering that the specification at Page 8, lines 11-13, provides little to no guidance with regards to the term “prepolymer”.

Art Unit: 1773

14. Claim 17 is further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 17 is written in such a manner that the Examiner is unable to determine what is meant to be encompassed by the claim. In addition to the improper alternative expressions, the claim recites “namely” and includes a parenthetical expression at line 9, however, it is unclear whether the limitations following “namely” or in the parenthetical expression of line 9 are meant to be part of the claimed invention. Claim 17 recites functional groups at lines 12-16 which appear to be the same as those recited at lines 2-10, and further recites “as well as epoxy groups” at line 15-16 wherein it is unclear as to whether “epoxy groups” are present in addition to the other groups listed or whether epoxy groups are meant to be part of a Markush group.

15. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 18 recites the limitation “the adhesion promoter” in line 2 and “the polymer or prepolymer of the coating” in line 9. However, given that Claim 18 depends from Claim 1, there is insufficient antecedent basis for this limitation in the claim considering Claim 1 does not recite or reasonably suggest an adhesion promoter or a prepolymer.

16. Claim 19 is further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 19 is written in such a manner that the Examiner is unable to determine what is meant to be encompassed by the claim. In addition to the improper alternative expressions, it is noted that Claim 19 recites “according to Claim 17, wherein the groups of formula (I) are as follows”, however, there is insufficient antecedent basis for the limitation



Art Unit: 1773

“formula (I)” in the claim. It is also noted that Claim 19 includes a parenthetical expression at lines 11-12, and recites the limitations “especially” and “for example” in lines 13 and 30, wherein it is unclear whether the limitations in the parenthetical expression or following the terms “especially” or “for example” are part of the claimed invention. The Examiner further notes that at the end of line 20, a period is present after “metallic medium”, which indicates the end of the claim however additional limitations are present after line 20 wherein considering a claim should be one sentence, it is unclear whether the limitations following the first period are part of the claimed invention. At lines 20-21, the claim recites “the non-metallic medium”, however, there is insufficient antecedent basis for this limitation in the claim. At lines 22, the claim recites “R: -CH<sub>2</sub>-; a -(CH<sub>2</sub>)-chain, whereby  $2 \leq n \leq 20$ ” however it does not indicate an “n” with respect to the R and further it is noted that Claim 17 from which Claim 19 depends also includes an “n” which is unrelated to line 22. Similarly, at line 28, the claim recites “ $0 \leq n, m \leq 16$ ” however do “n” or “m” is disclosed in this section though an unrelated “n” and an unrelated “m” are disclosed in Claim 17 from which Claim 19 depends. Claim 19 also recites at lines 29-30 “optionally substituted, for example according to the above cited list of substituents” however it is unclear what “the above cited list of substituents” refers to.

17. Claim 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 recites the limitation “an additional layer of the polymeric or non-cured elastomeric composition on top of said coating for further reinforcement” however it is first noted that Claim 1 from which Claim 20 depends does not recite a first layer of polymeric or non-cured elastomer with regards to the term “additional”. Secondly, with regards to the

Art Unit: 1773

limitation “the polymer or non-cured elastomeric composition”, there is insufficient antecedent basis for this limitation in the claim particularly given that Claim 1 does not recite a “non-cured elastomeric composition”.

***Claim Rejections - 35 USC § 102***

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

19. Claims 1-5, 8, 17 and 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Garnier et al (USPN 6,087,519). Garnier et al teach an adhesive substance for improved adhesion between a vulcanizable polymer and a metallic reinforcing carrier, such as a steel cord (*an elongated steel element as in instant claim 8*) wherein the adhesive substance has the structure according to Col. 2, lines 1-30) with a functional group X, such as a thiol group (*as in instant claim 17*), covalently bonded to the metal surface, and a functional group Y which can be covalently bonded to the rubber during vulcanization (*hence vulcanizable/crosslinkable with the rubber as in instant claims 4-5*) wherein the coated metal reinforcement element is produced by coating the adhesive substance dissolved in an organic solvent and drawing the metallic reinforcing carrier through the solution in a dipping process, coating with vulcanizable polymer

Art Unit: 1773

and carrying out vulcanization (Abstract; Col. 1, line 64-Col. 2, line 50; Col. 3, lines 54-66; Col. 3, line 66-Col. 4, line 10; Col. 6, lines 16-51.) With regards to Claims 1 and 2, the Examiner takes the position that the claim limitations “deposited from an aqueous solution” and “deposited from an alcoholic solution” are process limitations that do not affect the resulting product given that the resulting coated product does not contain the aqueous, alcoholic or organic medium and hence the product taught by Garnier et al is the same as the instantly claimed product. With regards to Claims 20-21, the Examiner takes the position that the vulcanizable polymer that is coated over the treated metal reads on the instant claims given that an additional layer of the same vulcanizable polymeric material results in a product that would be the same as a single layer of vulcanizable polymeric material coated to a thickness equal to that of the combined individual layers.

20. Claims 1-5, 8-10, 12, 13, 17 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 58-193134 (JP'134.) JP'134 teaches a method of firmly bonding a steel cord (*elongated steel element as in instant claim 8*) to rubber in a manner such that rubber tires using said cord material (*as reinforcement, Figure 2*) may be durable for a long period wherein the surface of the steel cord, which is preferably plated with brass, copper, zinc or Cu-Zn-Co ternary alloy (*as in instant claims 9-10*), is coated with a liquid rubber (*as in instant claims 12-13*) containing COOH or OH groups (*as in instant claim 17, wherein the Examiner takes the position that the COOH groups, as in Claim 17, would inherently form a covalent bond to the metal surface which is the same as the instant invention; Abstract; Figures.*) The steel cord is transferred into a liquid rubber bath, heat treated and then buried in vulcanizable rubber and vulcanized wherein the liquid rubber is preferably a polyisoprene rubber (*inherently a*

Art Unit: 1773

*vulcanizable rubber that is co-vulcanizable or crosslinkable with the rubber of the tires as in instant claims 4-5; Abstract; Figures.)* With respect to the type of solution, though JP'134 does not specifically state that the solution is aqueous, alcoholic or organic, the Examiner takes the position that these limitations are process limitations that do not affect the resulting product given that the resulting coated product does not contain the aqueous, alcoholic or organic medium and hence, the invention taught by JP'134 is the same as the instantly claimed invention. With regards to Claims 20-21, the Examiner takes the position that the vulcanizable polyisoprene that is coated over the treated metal reads on the instant claims given that an additional layer of the same vulcanizable polymeric material results in a product that would be the same as a single layer of vulcanizable polymeric material coated to a thickness equal to that of the combined individual layers.

21. Claims 1-3, 8, 12-13, 17 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by FR 2271036 A (FR'036.) FR'036 teaches threads for reinforcing rubber articles consisting of a steel core (*elongated steel element as in instant claim 8*) coated with a first layer of vinyl polymer such as a vinyl acetate polymer or copolymer (*inherently thermoplastic, as in instant claims 12-13*) containing free OH and/or COOH groups (*as in instant claim 17, wherein the Examiner takes the position that the COOH groups, as in instant Claim 17, would inherently form a covalent bond to the metal surface as in instant Claim 1*) and then coating a second polymer layer consisting of polyphenol-HCHO resin and styrene-butadiene-vinyl pyridine terpolymer and optionally a natural or synthetic rubber (*as in instant claims 20-21; Abstract; Claims 1-9.*) Though FR'036 does not specifically teach that the first polymer layer is formed by depositing the polymer from an aqueous, alcoholic or organic solution, the Examiner takes the

Art Unit: 1773

position that these limitations are process limitations that do not affect the resulting product given that the resulting coated product does not contain the aqueous, alcoholic or organic medium and hence, the invention taught by FR'036 is the same as the instantly claimed invention.

***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garnier et al in view of the admitted prior art. The teachings of Garnier et al are discussed above. Garnier et al do not teach that the steel cord is coated with a metallic layer, however, the admitted prior art at Page 1, lines 20-21 teach that metal reinforcements are generally coated with a brass layer as in instant claim 9.

24. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garnier et al, in view of Marzocchi (USPN 3,793,130) or Goliaszewski et al (USPN 5,518,770) or JP'134. The teachings of Garnier et al are discussed above. Garnier et al do not specifically teach that the steel cord or reinforcement comprises a metal alloy or zinc alloy coating, however, it is very well known and conventional in the art to treat the surface of a metal wire or cord or other metallic surface, particularly a steel surface, with a cladding metal such as copper, zinc, tin or alloys thereof, and particularly zinc or alloys thereof as in a galvanization process, including

Art Unit: 1773

zinc-aluminum alloys, to pretreat the steel or improve the corrosion resistance of the steel, as evidenced by Marzocchi (Col. 7, lines 1-7) or Goliaszewski et al (Col. 1, lines 1-45; Col. 32-39) or JP' 134 (Abstract), and hence it would have been obvious to one having ordinary skill in the art to subject the steel cord taught by Garnier et al to a galvanization process or metal cladding process with a conventional metal alloy such as brass or zinc alloys including zinc-aluminum alloys.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R Jackson whose telephone number is 703-308-0428. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Monique R. Jackson  
Patent Examiner  
Technology Center 1700  
July 1, 2002